

Estate Clifton Hill
King's Quarter
St. Croix
Virgin Islands

HAER No. VI-4

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ADDENDUM
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ADDENDUM TO —

Estate Clifton Hill:

Sugar Factory & Rum Distillery

(Christiansted) King's Quarter

St. Croix

Virgin Islands

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WRITTEN HISTORICAL AND DESCRIPTIVE DATA

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ESTATE CLIFTON HILL
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HISTORIC AMERICAN ENGINEERING RECORD

Clifton Hill Report

HAER No. VI-4

by JOHN C. RUMM

Estate Clifton Hill distilled rum from 1915 to the mid 1940s, its most recent operating period, but its prior history of sugar production stretches back to the mid-1700s. The steam mill from the recent distillery survives nearly intact, and although the distilling apparatus is missing, it is nonetheless possible to trace the production procedures. An overseer's house (now occupied by the present owner), a servant's quarters, a lime kiln [1], a windmill, a chimney, and a wind-driven water pump remain on the estate, in addition to the deteriorating factory building. Clifton Hill's progression from sugar and rum production to rum production alone, clearly indicates the efforts of sugar planters in a financially troubled area to salvage something from their livelihood.

Christian VI, the Danish monarch, held 26 land parcels of approximately 150 acres each in his "King's Quarter," presented to him following the survey and land division of St. Croix by the Danish West India-Guinea Company in the 1730s and 40s [2]. Left under Company supervision, the King's lands were soon cleared, and by 1751 all usable land was cultivated. A 1754 map of St. Croix [3] indicates that the Marcoe family (also given as "Marhoe") operated an animal mill on parcel 22 in King's Quarter, located on Cliftonhill in the eastern Kingshill Range. [4] A second map, prepared in 1766 [5] shows Isaac and Frans Marcoe owning this land, on which a windmill had been erected. It is uncertain whether the Marcoes also had a sugar-works building at this time.

The Marcoe family lived at Clifton Hill for some seventy years after 1766. A keystone bearing the date 1808 indicates that in this year the Marcoes constructed a sugar-works factory. [6] This building, presumably modeled upon Oxholm's "ideal T-shape" factory plan, was built at the base of a hill below the windmill and the present-day overseer's house. It was designed with the T-stem (sugar-works room) oriented up the hill east and west, toward the windmill, and with the T-head (rum and storage rooms) oriented north and south at the base of the hill. The walls of the existing sugar-works room, although later altered, probably date from the original 1808 factory. Measuring 75 feet long and 23 feet wide, this room contained the coppers (of which 2 survive, although not in situ), clarifier, and cooling-pans. The existing rum room was presumably built upon the original walls and foundation of the north half of the T-head. It measures 52 by 24 feet. Ruins of a wall adjacent to, and oriented south of, the west wall of the existing rum-room are all that remain today from the T-head's southern half. The dimensions of this room were presumably similar to those given for the existing rum-room. Following Oxholm's model, these rooms probably held a cooling cistern, a molasses separation cistern, and a storage area

for sugar hogsheads and rum puncheons. The still and doubler would have been situated outside the T-head rooms, adjacent to the cooling cisterns. [7]

Peter Marcoe operated Estate Clifton Hill from 1815 to 1824. [8] Figures for 1816 show 100 acres planted in sugar cane and 50 acres in other crops, and 119 slaves on the estate. [9] His children operated the plantation after 1824, with an increased work force of 146 slaves and 49 other laborers. The 1820s, marked by droughts, a declining sugar market, and other problems, were difficult years for planters; a list of tax debtors to the Land Treasury, published 1 January 1829 in the *St. Croix Avis*, included the Marcoe family. [10] M. H. Marcoe, who purchased Clifton Hill at auction in late 1829 for 67,000 pieces of silver (Ps), held the estate until 1836. In 1836 Marcoe's sugar factory produced 136,647 net lbs. of raw sugar for export and further refining, and this output was fairly satisfactory. [11]

For reasons unclear, however, Clifton Hill was sold at auction later that same year, to H. Seaton, Jr. and Manning Seaton for Ps 45,000. The Seatons in turn sold it to H. Seaton, Sr. for the same amount in 1837. Sugar production thereupon fell to 94,101 pounds late in 1837, and by 1838 Clifton Hill had a new manager, Charles' O'Reilly. Sugar production for 1839 rose to 160,578 lbs. When O'Reilly died in 1846, his will left two parts of the estate to Charles Donocho, and one part each to H. Jacobs and an unnamed O'Reilly heir. Figures for 1848 state that, prior to their emancipation in July of that year, only 80 slaves worked the estate. [12] Following the emancipation and the subsequent uncertain labor market, Clifton Hill's sugar output showed considerable variation -- from about 63,000 lbs. in 1850 and 1857, to 118,107 lbs. in 1854. Five years after Donocho assumed sole operation of the estate in 1857, only 75 of the 150 acres were planted in sugar cane and only 31 laborers remained. [13]

Donocho's heirs, Joseph Quaile and H. Percy, operated Clifton Hill after 1863. Sugar output, measured in hogsheads (1 hogshead = 1500 lbs. sugar), and averaged 79 hogsheads for the period 1815-1861, [14] but in 1864 only 20 hogsheads were produced. [15] This figure gradually rose over the next few years, but Clifton Hill's sugar output was increasingly handicapped through its reliance upon a windmill for cane crushing and other outdated apparatus for sugar manufacturing. Faced with mounting debts and production costs, as well as an unsatisfactory sugar output, Quaile purchased a steam mill for Clifton Hill in July 1868. [16] Since this mill was later sold for scrap, no physical trace of its remains, but some dimensions are available. A horizontal steam engine, with an 11-inch bore and 30-inch stroke, drove a cane crusher with rollers 20 inches in diameter and 36 inches long. It is uncertain whether this engine was housed at the site of the exist-

ing steam-engine, or if the surviving engine-room is a later addition.

The shift to steam power was accompanied by a comparable upgrading of the estate's sugar-works apparatus used exhaust steam from the engine. The first device, a cylindrical cast-iron tank, was probably a clarifier. It stands 4 feet-7-1/4 inches high, and is 6 feet-2-3/8-inch in diameter at the base. An overflow scupper, 8 feet-2 inches in diameter, surrounds the top rim. The other unit, a rectangular box, was presumably a boiling-pan. Its base measures 4 feet-7-1/4 inches by 8 feet-1/2-inch, and the four side-panels, standing 2 feet-3-5/8 inches high, all prominently display the maker's name: "G. Fletcher, London."

Estates Spanish Town and Profit, formerly independent sugar-manufacturing estates, began delivering harvested sugar cane to Clifton Hill in 1869. Together the three estates offered 450 possible acres for sugar cultivation, yet no more than 229 acres were ever planted at one time. [17] Quaille operated the estate from 1871 to 1877, but the increased sugar cane harvest coming into the factory and the recent technological improvements failed to proportionally increase production. Ninety acres of sugar cane provided 133,056 lbs. or 89 hogsheads of sugar for export in 1868; in 1871, 228 acres resulted in only 271,174 lbs. (185 hogsheads). By 1874, these figures had declined, because of a severe drought, to 59,103 lbs. (39 hogsheads), produced on 185 acres. [18]

E. Switzer, who operated Clifton Hill in 1878, began shipping the bulk of his harvested sugar cane to the new Central Factory for processing; he delivered 3,575,274 lbs. of cane that year. [19] 1878 also brought the disastrous labor riot and "Great Burn" that destroyed many St. Croix estates. Clifton Hill was burnt out, but it was one of the few estates whose sugar works were saved from destruction. [20] Charles Leevy operated the estate from 1879 to 1883, and in 1883 only 1,546,330 lbs. of sugar cane, cultivated on 175 acres, were shipped to the central factory.

Axel Hoffmann acquired Clifton Hill in 1884, and the estate has remained under the Hoffmann family's control until the present day. Estate Spanish Town became an independent estate again in 1884, but by 1893 Hoffmann once more received sugar cane from its fields. Figures for 1890 show that Clifton Hill cultivated 100 acres of sugar cane; employed 25 men and 17 women as field-laborers; and kept 2 mules and 14 oxen. [21] By 1890, sugar production at Clifton Hill itself had virtually ceased, as Hoffmann sent most of his cane crop to the Central Factory. From 1890 to 1902, he cultivated an average of 119 acres annually, and he delivered a total of 42,171,440 lbs. of cane to the Central Factory. From 1890 to 1896, Hoffmann produced a total of only 25,750 lbs. of sugar on his own estate. He produced no sugar at all

after 1896. [22] Presumably it was shortly thereafter that Hoffman sold the original steam mill from his factory for scrap. It also appears that sugar cane cultivation at Clifton Hill ceased, for reasons unknown, after 1902. [23]

Hoffmann extensively modified the existing sugar factory on the estate about 1915, converting the entire operation into a rum distillery. [24] He obtained, from Estate Mount Pleasant, a horizontal steam engine manufactured about 1880 by D. Stewart and Company Ltd. of Glasgow, Scotland. This steam engine and its associated cane crusher are remarkably intact, missing only some nuts, bolts, and a pressure gauge which presumably had been mounted on the inlet steam pipe. The cylinder cover and steambox cover have been removed from the engine but are available at the site for measurement. Major features of the single-cylinder, horizontal engine include a circular-section connecting rod with box ends, a D-slide valve, a single base-plate slide guide, a three-weight governor on a spring-suspension, a non-counter-weighted crank arm, and integral base, frame, and cylinder castings. The engine has a 15-inch bore and a 36-inch stroke. The cast-iron flywheel is 14 feet in diameter and 7-3/4 inches across the face. The flywheel hub, rim and spokes were cast in four units and bolted together. The engine is set on field stone and the reduction gear shafts are supported in two-piece brass box bearings. The double-reduction gears, with a total reduction ration of 105:4, powered the mill rollers.

The mill has three cast-iron rolls whose circumferential grooves are 3/10ths of an inch apart. Each roll is 23-3/4 inches in diameter; the top roll with a crushing length of 4 feet-1/2-inch, is slightly shorter than the two lower rolls which have flanges on both ends. When crushing cane, these rolls were set close together. The cane-juice receiver, 37 inches square and 36-1/2 inches deep, is next to the mill.

An engine room measuring 49 feet-3 inches by 22 feet-10 inches, houses the steam engine and the boiler, the engine room is adjacent to the north wall of the sugar works room and, like its is oriented east to west up the hill. Part of this room's high, wood-trussed gable roof has fallen in, and the north wall, made of boards without masonry, has mainly been stripped away.

Fueled with wood and cane-trash (or bagasse), one fire-tube boiler provided steam. (The extant boiler replaced an original 1915 unit which blew out shortly after installation.) The boiler's flow-gases passed from the firebox below the boiler along its length, up and through the interior fire-tubes, and then around and beside the length of the boiler. From here, the gases passed up the hill to a stack which stands some twenty-five feet above its inlet base. The total distance from firebox to stack top is 348 feet.

Steam from the boiler passed through an overhead pipe to the engine. The cylinder ends are equipped with spring-loaded safety valves, and both cylinder ends also have piping beneath to separate and remove any water which might condense in the cylinder. Steam exhaust passed through a pipe in a floor trench to the adjacent sugar-works room for use in auxiliary equipment, including a water pump and a low-wine pump. It was finally released to atmosphere outside the sugar-works room.

The sugar-works room is apparently housed in the original walls of the 1808 factory building, but it exhibits features suggesting later alterations. With the exception of a small mezzanine for equipment (which has collapsed but is indicated by several remaining posts standing about 8 feet tall), this was a single story room with a gabled roof (now missing) and clerestories for ventilation. The elaborate nature of the roof and clerestories indicates that they were included in the 1915 modification of the physical plant. A clarifier and a boiling-pan, previously mentioned, presumably were situated on the mezzanine prior to its collapse. Two other tanks which remain in the sugar works-room were formerly boiler equipment and served in later years for water storage.

The rum-room appears to have undergone substantial modification in 1915. A recessed area in the ground floor, forming a receiving tank 4 feet-8 inches wide, 9 feet long and approximately 18 inches deep, held the distilled rum flowing from the doubler through the worm in the cistern. A second recessed area, containing a vat 2 feet-8 inches in diameter, stored the low wine for later use in the distilling process. Both features were probably added in 1915. The low wine was conveyed to the doubler by a steam-driven pump, and it is possible that this pump, which remains in the room, may have pumped water as well. The lower story of the rum-room also functioned as a storage area for the rum puncheons prior to shipping. Presumably for security reasons, this story contained only one barred window, on the south wall, in addition to the shipping and receiving door on the east wall.

The upper floor of the rum-room, which is level with the floor of the sugar-works room, held 4 large vats approximately 6 feet-6 inches in diameter, into which the clarified and boiled sugar cane-juice was conveyed. Openings on this story, as in the lower story, constituted only a very small area of the available wall space, in contrast to the well-ventilated engine and sugar-works rooms. A door on the west wall opened into the sugar-works room; a door on the north wall led onto the top of the large cistern; and single windows were set into the south and east walls. An exterior stairway on the east wall led up

to the second story, but, to safeguard the valuable rum stock, there probably was no exterior stairway. A flat roof, now almost entirely collapsed, covered the rum-room. The nicely crafted masonry walls are five feet thick on the lower story and founded on the remains of earlier walls. They are two feet thick on the upper story.

The actual rum-distilling apparatus was positioned adjacent to the rum-room on its north side. Although the placement of the still is apparent, its dimensions cannot be precisely determined. A small stack to the northeast served the furnace below the still. The doubler or retort, located east of the still, was, judging from surviving from surviving base remnants, a circular tank some 3 feet-6 inches in diameter. East of the doubler is a large water cistern which formerly held the worm or coil. Hot vapors passed from the doubler into the cool worm and condensed to form rum, which then collected in the receiving tank in the rum-room. [25]

The receiving tank functioned not only as a cooking tank but as a water conservation receptacle for the entire system. Water conservation was essential on drought-prone St. Croix. A small cistern, located north of the sugar-works room, received run-off water from both the sugar-works and engine room roofs. This smaller cistern presumably supplied water for the boiler through gravity flow. (Later a water pump conveyed the water to the boiler). Gutters carried excess water from this cistern to the larger receiving tank. Runoff from this large cistern ran into a gutter leading to a small animal water-trough adjacent to the east wall of the cistern.

The rum-making process commenced with ten or twelve men feeding sugar cane stalks 4 to 6 feet long into the cane crushers. Harvested sugar cane, cultivated either at Clifton Hill or on other estates, or which had been purchased from squatters, was piled 10 to 15 feet high in bundles beside the mill. [26] Before feeding the cane stalks into the mill, the workers removed the outer leaves, or bagasse, and set them aside to be dried and used as fuel in firing the boiler. Cane-juice from the crushed cane stalks flowed into the cane-juice receiver. From here a juice pump, driven by a crank attached to the center reduction-gear axle, conveyed the cane-juice to the sugar-works room. The juice was then clarified and reduced in the boiling pans and clarifiers, and finally it flowed by gravity to the vats in the upper story of the rum-room.

The four large vats stored the cane-juice for 4 days to a week while it fermented into "mash." Workers skimmed off impurities from the fermentation process, to the still.

A low fire beneath the still cooked the mash and the resultant hot vapors passed through a gooseneck pipe into the doubler. Low wine -- weak-proof rum gathered at the beginning and end of a previous distillation -- had been pumped to the doubler from the rum-room until the doubler held some 100 to 150 gallons. [27] The hot vapors from the still heated the low wine, causing it to boil, and the vapors from this process passed into the cool worm in the large cistern. Inside the worm the hot vapors condensed into rum and flowed into the receiving tank in the rum-room. "The first five gallons of the condensed liquid were drawn off as low wine," [28] and sent to the low wine holding tank. The distilled rum was checked for its proof using a hydrometer by the engine-man, and it was then put into barrels for shipping. The Hoffmanns produced only "white rum" in their distillery and "used parafine to coat the barrels inside to keep the rum from turning color." [29]

For normal runs the Hoffmanns operated their distillery five days a week; if a special shipment was required, they would operate the distillery on Saturday and occasionally on Sunday. Apparently some rum was also bottled at Clifton Hill, at least until Mr. Hoffmann's death in 1927. [30]

Following his death, the family closed the distillery at Clifton Hill until about 1933, when the late Mr. Hoffmann's daughter, Marie, reopened it at the request of Austin Nichols and Company, Inc., in Brooklyn, New York. [31] Under her management Clifton Hill shipped 75 barrels of rum every two weeks until the mid-1940s, when high labor costs, shortages of sugar cane, and competition from Jamaican rum distilleries forced it to cease operations. [32]

NOTES

¹"The planters usually made their own lime for mortaring the Great-house and factory buildings. A kiln was built into a hillside or earthen buttresses were packed against the firing room if no hills were available. The kilns ... had two small furnaces inside, both with openings for firing in front. There was a large hole in the roof for a vent. Coral rock, alternated with rows of wood and stone, was burnt until the resulting lime sifted down through a grate on the floor. Various binders, including molasses, were used to convert the lime to a mortar for building. One of the old kilns is still intact at Estate Clifton Hill where lime was sold commercially for many decades to builders who did not want to make their own kilns."

Florence Lewisohn, St. Croix Under Seven Flags, (Hollywood, Florida: The Dukane Press, 1970), p. 116.

²Ibid., p. 82.

³Beck map of 1754; copy in St. Thomas Public Library, Charlotte Amalie, St. Thomas.

⁴James W. McGuire, Geographical Dictionary of the Virgin Islands of the United States, (Washington: Government Printing Office, Special Publications number 103), p. 56.

⁵Waldeman Westergaard, "A St. Croix Map of 1766; With a Note on Its Significance in West Indian Plantation Economy," Journal of Negro History, April 1936. Microfilm copy in St. Thomas Public Library.

⁶Oral interview, Marie Hoffmann, 18 July 1977.

⁷Oral interview, David Hayes, 19 July 1977.

⁸Harrye Newmann, "Estate Clifton Hill." All other references to the ownership of the estate are from this source unless otherwise noted.

⁹Statistics Regarding Properties in the Island of St. Croix 1816-1857, (n.a., n.d.) under entry for "Cliftonhill." Microfilm, St. Croix Public Library, Christiansted. Supplements source for note 8 through 1857.

¹⁰Lewisohn, p. 217.

¹¹"Table of Quantity of Sugar Shipped from 1835 to 1840 and 1850-1857 in Nett Lbs.," in Statistics Regarding Properties on the Island of St. Croix, 1816-1857, under entry for "Cliftonhill."

¹²Statistics Regarding Properties on the Island of St. Croix, 1816-1857, under entry for "Cliftonhill."

¹³The Pocket Almanac for 1863, (n.a.), (Christiansted, St. Croix: P. B. Hatchett, 1863), under entry for "Clifton Hill." These laborers were listed as follows, under classifications drawn up under the 1849 Labor Act:

Field laborers: 8 first class, 6 second class, 5 third class

Laborers not in field: 7 first class, 3 second class, 2 third class

Additionally, Donocho owned the following livestock: 1 horse; 5 mules; 16 horned cattle including calves. He also had 2 domestic servants and 2 tradesmen.

¹⁴"Table V: Statement of the Sugar Estates, Area, and Average Crops from 1815-1861, from 1862-1889, and from 1880-1889," in Statistics Concerning Sugar Production in St. Croix from 1862-1889, (n.a.).

¹⁵"Table VIII: Statement of the Annual Sugar Production on the Estates [from 1862 to 1889]" in Ibid., (hereafter abbreviated SCCP).

¹⁶"Sugar Cane Crushing Plants Supplied to St. Croix," (n.a., n.d.) prepared from corporate records by St. Croix Landmarks Society.

¹⁷SCCP, Table VIII.

¹⁸Ibid.

¹⁹Ibid.

²⁰New York Herald Tribune, "Negro Insurrection at St. Croix," November 28, 1878.

²¹SCCP, Table VII, "Statement for the year 1890, of the number of the field-laborers on the sugar estates, the number of the working animals, and the area on each estate, or set of estates worked together, of land in sugar cultivation bound to pay taxes, deducting the area that on certain estates is rented out to 'squatters'," under entry for "Clifton Hill." The average figures for all estates per 100 acres in sugar cultivation are as follows:

- a) number of men: 23.6
- b) number of women: 17.9
- c) number of mules: 7.9
- d) number of oxen: 10.3

²²Statistics Concerning Sugar Production in St. Croix, from 1890-1907, (n.a., n.d.), Table VII: "Statement of the Annual Sugar Production on the Estates."

²³This statement is attributed to the fact that, while the table for sugar production covers the period from 1890 to 1907, figures for Clifton Hill extend only through 1902.

²⁴Interview with Marie Hoffmann, 19 July 1977.

²⁵Florence Lewisohn, Divers Information on the Romantic History of St. Croix, (Christiansted, St. Croix: St. Croix Landmarks Society, 1964), p. 37.

²⁶Interview with Marie Hoffmann, 19 July 1977. Miss Hoffmann provided the basic information on the rum-making process in this section and was corroborated by David Hayes.

²⁷Lewisohn, Divers Information, p. 37.

²⁸Ibid.

²⁹The quoted statement is from Lewisohn, St. Croix under Seven Flags, p. 221; Miss Hoffmann provided similar information.

³⁰This information was derived from a rum bottle label supplied by Miss Hoffmann, which reads:

"Product of Virgin Islands
Clifton Hill Distillery
Hoffmann's Pot Still
St. Croix
Rum
Made from Pure Cane Juice
Distilled and Bottled by
Clifton Hill Distillery
St. Croix"

Miss Hoffmann stated that when she managed the distillery, there were no facilities for rum-bottling. (Interview, 20 July 1977.)

³¹Another, later, rum-bottle label for "Saint Croix Superior Rum," containing the given information regarding Austin Nichols and Company, Inc., was supplied by Miss Hoffmann.

³²Interview with Miss Hoffmann, 20 July 1977. Miss Hoffmann was uncertain as to the precise date of this closing, although she believed it took place about 1947.

Addendum To:

Estate Clifton Hill, Sugar Factory & Rum Distillery
S. Central St.
King's Quarters
St. Croix County
Virgin Islands

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Historic American Engineering Record
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ADDENDUM TO
ESTATE CLIFTON, SUGAR FACTORY
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